

**WHAT IS CLAIMED IS:**

1. A system comprising:

5                   at least one computer system, wherein the computer system is configured to execute a virtual machine corresponding to a user;

a storage subsystem configured to store data representing the virtual machine; and

10                  at least one file server coupled to a network to which the computer system is configured to be coupled, wherein the file server is further coupled to the storage subsystem, and wherein the file server is configured to provide the computer system with access to the data representing the virtual machine on the storage subsystem over the network.

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2. The system as recited in claim 1 wherein the at least one file server comprises a plurality of file servers in a cluster.

20                  3. The system as recited in claim 1 wherein the computer system is configured for essentially continuous connection to the network during use, and wherein the computer system is configured to effect modifications to a state of the virtual machine by modifying the data in the storage subsystem.

25                  4. The system as recited in claim 3 wherein the computer system is configured to cache at least a portion of the data in the computer system.

5. The system as recited in claim 1 wherein the computer system is configured for intermittent connection to the network during use, and wherein the computer system includes storage configured to store the data representing the virtual machine, and

wherein the computer system is configured to replicate modifications to a state of the virtual machine to the data stored on the storage subsystem during times that the computer system is connected to the network.

- 5        6. The system as recited in claim 1 wherein the at least one computer system comprises a plurality of computer systems, and wherein a given computer system of the plurality of computer systems is configured to execute the virtual machine responsive to a user login to the given computer system.
- 10       7. The system as recited in claim 1 further comprising a provisioner server coupled to the network, wherein the computer system is configured, during boot, to issue a remote boot request, and wherein the provisioner server is configured to respond to the remote boot request if the computer system is to be provisioned.
- 15       8. The system as recited in claim 1 wherein the storage subsystem is configured to store data representing a plurality of virtual machines, each of the plurality of virtual machines corresponding to a respective user of a plurality of users, and wherein the system further comprises a maintenance server coupled to the storage subsystem, wherein the maintenance server is configured to perform one or more maintenance actions on the plurality of virtual machines on the storage subsystem.
- 20       9. The system as recited in claim 1 further comprising a second computer system used by an administrator, wherein the virtual machine is executed on the second computer system by an administrator to diagnose a problem reported by the user, and wherein the administrator is configured to update the virtual machine to correct the problem, and wherein the user is configured to execute the corrected virtual machine from the storage subsystem.
- 25       10. A computer accessible medium comprising a plurality of instructions which, when

executed on a computer system, responsive to a login of a user on the computer system, cause the computer system to execute a virtual machine corresponding to the user, the virtual machine represented by data stored in a filesystem accessible to the computer system over a network to which the computer system is configured to be coupled at least 5 intermittently.

11. The computer accessible medium as recited in claim 10 wherein the computer system is configured for essentially continuous connection to the network during use, and wherein the plurality of instructions, when executed, effect modifications to a state of the 10 virtual machine by modifying the data in the storage subsystem.

12. The computer accessible medium as recited in claim 11 wherein the plurality of instructions, when executed, cache at least a portion of the data in the computer system.

15 13. The computer accessible medium as recited in claim 10 wherein the computer system is configured for intermittent connection to the network during use, and wherein the computer system includes storage configured to store the data representing the virtual machine, and wherein the plurality of instructions, when executed, effect changes to a state of the virtual machine by modifying the data in the storage, and wherein the plurality 20 of instructions, when executed, replicate modifications to a state of the virtual machine to the data stored in the remote filesystem during times that the computer system is connected to the network.

14. A computer system comprising execution hardware and a computer accessible 25 medium coupled to the execution hardware, the computer accessible medium comprising a plurality of instructions which, when executed by the execution hardware, responsive to a login of a user on the computer system, cause the computer system to execute a virtual machine corresponding to the computer system, the virtual machine represented by data stored in a filesystem accessible to the computer system over a network to which the

computer system is configured to be coupled at least intermittently.

15. The computer system as recited in claim 14 wherein the computer system is configured for essentially continuous connection to the network during use, and wherein the plurality of instructions, when executed, effect modifications to a state of the virtual machine by modifying the data in the storage subsystem.

16. The computer system as recited in claim 15 wherein the plurality of instructions, when executed, cache at least a portion of the data in the computer system.

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17. The computer system as recited in claim 14 wherein the computer system is configured for intermittent connection to the network during use, and wherein the computer system comprises storage configured to store the data representing the virtual machine, and wherein the plurality of instructions, when executed, effect changes to a state of the virtual machine by modifying the data in the storage, and wherein the plurality of instructions, when executed, replicate modifications to a state of the virtual machine to the data stored in the remote filesystem during times that the computer system is connected to the network.

20 18. A method comprising:

responsive to a login of a user on a computer system, executing a virtual machine corresponding to the user on the computer system; and

25 managing a filesystem on a storage subsystem using at least one file server, wherein the storage subsystem stores data representing the virtual machine; and

communicating, at least intermittently, between the file server and the computer

system over a network between the file server and the computer system to provide access to the data representing the virtual machine.

19. The method as recited in claim 18 wherein the at least one file server comprises a plurality of file servers, the method further comprising clustering the plurality of file servers to provide high availability characteristics in the filesystem.
20. The method as recited in claim 18 wherein the computer system is configured for essentially continuous connection to the network during use, the method further comprising effecting modifications to a state of the virtual machine by modifying the data in the storage subsystem.
21. The method as recited in claim 20 further comprising caching at least a portion of the data in the computer system.
22. The method as recited in claim 18 wherein the computer system is configured for intermittent connection to the network during use, and wherein the computer system includes storage configured to store the data representing the virtual machine, the method further comprising:
  - 20 effecting changes to a state of the virtual machine by modifying the data in the storage on the computer system; and
  - 25 replicating the modifications to a state of the virtual machine to the data stored on the storage subsystem during times that the computer system is connected to the network.
23. The method as recited in claim 22 further comprising:

correcting a problem in the virtual machine by modifying the data on the storage subsystem; and

replicating the data from the storage subsystem to the computer system during a 5 time that the computer system is connected to the network.

24. The method as recited in claim 22 wherein a provisioner server is coupled to the network, the method further comprising:

10 during boot, issuing a remote boot request from the computer system; and

the provisioner server responding to the remote boot request if the computer system is to be provisioned.

15 25. The method as recited in claim 24 further comprising:

an administrator diagnosing a problem with the virtual machine;

the administrator determining that the computer system is to be provisioned 20 responsive to diagnosing the problem; and

the administrator indicating to the provisioner server that the computer system is to be provisioned responsive to the determining.

25 26. The method as recited in claim 18 wherein the storage subsystem stores data representing a plurality of virtual machines, each of the plurality of virtual machines corresponding to a respective user of a plurality of users, the method further comprising performing one or more maintenance actions on the plurality of virtual machines on the storage subsystem.

27. In a system comprising at least one computer system on which a user logs in during use, at least one file server coupled to a network to which the computer system is coupled at least intermittently, a storage subsystem storing data representing a virtual machine 5 corresponding to a user, and a second computer system used by an administrator, wherein the file server provides access to the data representing the virtual machine to the computer system, a method comprising:

executing the virtual machine on the second computer system responsive to the 10 user reporting a problem with the virtual machine;

diagnosing the problem; and

if the problem is within the virtual machine, correcting the problem by modifying 15 the data representing the virtual machine on the storage subsystem.

28. The method as recited in claim 27 further comprising, responsive to diagnosing the problem, indicating to a provisioner computer system that the computer system on which the user logged in is to be provisioned during its next boot.

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